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Industry News

Study Reveals Scope of Annual U.S. Data Center Energy Consumption: 45 Billion kWh, Costing Nearly 3 Billion Dollars

February 19, 2007

In a keynote address at the LinuxWorld OpenSolutions Summit in New York, Randy Allen, Corporate Vice President, Server and Workstation Division, **Advanced Micro Devices** (AMD), revealed findings from a study that comprehensively calculated, for the first time, the energy consumed by national and global data centers annually. Addressing the need for thorough, credible estimates on data center power use, the study found that in 2005, in the U.S. alone, data centers and their associated infrastructure consumed five million kW of energy, the equivalent of five 1,000 MW power plants.

Supported by a grant from AMD and authored by Jonathan Koomey, Ph.D., staff scientist, Lawrence Berkeley National Laboratories and consulting professor, Stanford University, the study calculated the total power used by servers both in the U.S. and around the world. The study builds on data from analyst firm IDC on the stocks and shipments of servers, as well as measured data and published estimates of the power per unit used by various server models.

The study found that in 2005, total data center electricity consumption in the U.S., including servers, cooling and auxiliary equipment, was approximately 45 billion kWh, resulting in total utility bills amounting to \$2.7 billion, with total data

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center power and electricity consumption for the world estimated to cost \$7.2 billion annually. The report also examined the growth in electricity demands since the year 2000, concluding that over the last five years server energy use has doubled.

In his keynote address, Allen acknowledged that ongoing work between industry leaders and governmental agencies, including the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE), is helping to identify meaningful steps to reduce IT industry energy consumption. Citing the study's findings, Allen challenged these groups to accelerate their efforts and suggested several next steps to help bring accountability and measurement into tracking the industry's efforts, including: instituting an annual report on energy efficiency in U.S. data centers, to measure progress and determine new opportunities and challenges; developing a mechanism to enable businesses, large and small, to measure their own data center efficiency; and increasing alignment between government and vendor-neutral industry groups to foster the development of energy-efficient data centers for the future.

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